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Abstract
This study extends the research programme in Tiberian Hebrew prosodic phonology initiated by Dresher (1994). It adopts the syntax-driven theory of the intonational phrase proposed by Selkirk (2005), aligning Tiberian Hebrew pausal phonology with the “comma phrase”. A study of syntactic environments reveals a prosodic minimum-length constraint that trumps the comma-phrase projection.

The variability observed in the prose-accent system relative to pausal phonology disappears when reanalyzed in the poetic-accent reading. This in turn suggests the elegant theory that the “ancient” reading tradition identified by Revell (1980) might actually be the alternative, primitive poetic cantillation. The twofold reading of the Ten Commandments is also implicated in this proposal.

Further investigation of variability in the distribution of major pause reveals a twofold classification of the Tiberian Hebrew comma phrase: one subject to the length-constraint (CommaP1), one absolute (CommaP2). The ranking of the three constraints, then, ALIGNCOMMAP2 >> BINMIN(I) >> ALIGNCOMMAP1 constitutes the theory of the Tiberian Hebrew intonational phrase and the distribution of pausal phonology.
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Pausal forms are generally (probably universally) held to be conditioned by phonological features similar to the intonation patterns which mark the ends of sentences in English. If this is so, they ought to occur regularly, according to predictable patterns.²

A successful prosodic theory would distinguish those phrases which end in pausal forms from those which do not.³

0. Introduction: Generative Masoretics

0.0. The remarkable isomorphy of Biblical Hebrew (BH) syntactic structure (DeCaen 1995) and the syntax of the Tiberian logogenic chant (Price 1990, 1996) cries out for a formal explanation. The seminal study by Dresher (1994) explains this striking isomorphy by means of an abstract, intermediate prosodic representation¹ negotiated at the syntax-phonology interface.

0.1. Dresher thereby convincingly explains (a) how and why the chant deviates from BH syntax; (b) the otherwise bizarre function of the accents in directly demarcating the domains in which Tiberian Hebrew (TH) phonological rules operate; and (c) the compression and expansion phenomena of the accent systems in terms of the tempo and grain of a natural, spoken language.

0.2. Dresher’s prosodic theory has tremendous explanatory power pace Churchyard (1999). The scope of the theory can be extended and expanded into an ambitious programme in generative metrics which I call Generative Masoretics (figure 1).

0.3. From the many phonological and musical transformations can be deduced a detailed theory of TH metrical phonology (DeCaen 2008): a further interface intervening between the syntax and the music. The resulting metrical grids can be leveraged into a metrical theory of BH accentual-syllabic poetry (DeCaen 2009, 2011).
0.4. The implied complex boundary tones and down-stepping of highs and lows of the prosodic representation naturally project intonational contours: the inherent music of the spoken language. The parade of alternating highs and lows of these intonational contours is undoubtedly the source of the logogenic chant (DeCaen 1999, see also Weil 1995).

![Figure 1: Generative Metrics]

2. **Generative Masoretics and Computation**

2.0. The prospect of robust, detailed theories of TH prosodic and metrical representation opens out on a computational-linguistic vista. From arbitrary syntactic\(^5\) inputs, it should be possible to algorithmically project a prosodic representation. From the prosodic structure, it should be possible to algorithmically generate metrical grids. And from metrical grids it should be possible to algorithmically project the musical grids of the two accent systems via musical transformations.
2.1. The heart of such a computational project is the demarcation of phonological phrases (φ), aligning the edges of φ with syntactic edges based on ranked preferences and constraints. The optimality-theoretic (OT), node-correspondence-based Align/Wrap Theory of Selkirk (2000, 2005) supplies the required constraint-based and edge-based mapping.

2.2. Phonological phrasing of the simplified inputs of short lines of poetry, e.g., Psalms 111-112, is surprisingly straightforward (DeCaen in progress): more or less a few alignment constraints, following Selkirk (2000, 2005). However, as the lines get longer, and as we venture into prose, it readily becomes apparent that the grouping of φ’s into larger phrases, ex hypothesi intonational phrases (I), outranks other considerations absolutely.

3. The Intonational Phrase: A First Approximation

3.0. TH maintains conservative forms of words at the ends of major prosodic breaks, but syncopated and/or reduced forms elsewhere. The historically and derivationally earlier forms are called “pausal forms”, and the slurred forms “contextual forms” (Revell 1980, 1981, Goerwitz 1993, Churchyard 1999: ch. 3; see also DeCaen 2004, 2005). The pausal forms signal so-called “comma intonation”, cross-linguistically marked by elongation, complex pitch-contours (T-T%), and the upward resetting of pitch (Selkirk 2005: 1-2). Ex hypothesi the TH pausal forms mark the right edges of intonational phrases (Drescher 1994: 14).

3.1. The grouping of φ’s into larger I’s solves in principle the problems of drafting a syntax-to-phonology algorithm. However, there are a number of glaring problems. (a) Most words do not have pausal/contextual alternations to signal the right edges of I’s; consequently, the edges of I’s are generally invisible. Moreover, (b) pausal forms often fail to appear where they are reasonably expected; and (c) sometimes pausal forms appear where unexpected. This suggests a
syntactically grounded I is a necessary but not sufficient condition to trigger TH pausal phonology, implying one or more constraints on the projection of I’s.

3.2. Selkirk takes such a syntactically-grounded approach to the syntax-phonology interface in general, and to I in particular (2005: 15-16). Selkirk calls the type of syntactic node that corresponds to the I the “comma phrase” (CommaP). The root sentence is automatically a CommaP, but so too is a variety of embedded sentences. Other types of CommaPs include:

- nonrestrictive relative clauses
- all manner of parentheticals
- left-dislocation (casus pendens)
- appositives
- vocatives
- items in a list
- other varieties of focus/constrast

3.3. On this view, then, it is reasonable to employ TH pausal phonology in the first instance in the identification of those BH syntactic structures corresponding to CommaPs. With the identification and understanding of the syntactic structures and environments thereby obtained, it is then reasonable to turn tables and employ the comma-phrasing to isolate the higher ranking constraints on the realization of TH pausal phonology.

4. TH Pause before Complementizers

4.0. One obvious place to start is with the environment immediately preceding BH complementizers: in the present study, kî, ka’âšer, 9 ‘im, pen. Typically these complementizers trigger pausal phonology on the preceding word, where that word can display the pausal/contextual alternation. Ex hypothesi the subordinate clauses so identified are necessarily CommaPs.
4.1. Preliminary analysis reveals a very subtle distinction between sentences that are the object of a predicate and those that are not: either free (“root”) sentences, or subordinated but not objects (various adverbial functions). Pause fails systematically where the subordinated clause is the object of some predicate.

4.2. Compare (1), where the clause (CP$^1$) is the object of some predicate X (CP is sister of X); and (2), where the CP is the so-called “complement” of some predicate X (CP is sister of X').

It follows from §4.1 that the subordinated clause in (1) is never a CommaP; whereas, the clause in (2) must be a CommaP. Minimal pairs with kî abound: e.g., an object in (3) versus the root sentence in (4) with coordinating kî. Ex hypothesi, the systematic failure of pen to induce pause in the expression hiššâmer ləkā pen “take care lest” indicates that the underlying syntactic structure must also be the one shown in (1).12

(1) \[
\begin{array}{c}
X \\
\quad X' \\
\quad \quad X \\
\quad \quad \quad \text{XP}
\end{array}
\]

(2) \[
\begin{array}{c}
X \\
\quad X' \\
\quad \quad \text{CP} \\
\quad \quad \quad \text{XP}
\end{array}
\]

(3) šämaš'ú kî (Genesis 43:25,10): … heard that ...
(4) šāmēš'ú kî (Judges 2:17,6) … listened, but ...

4.3. It is further observed that the complementizer in the structure in (1) never appears at the beginning of the verse. Nevertheless, kî is ubiquitous in its other functions at the beginning of the verse, especially in poetry in its “emphatic” role. This particular distribution is therefore consistent with the distinction posited.
4.4. We now have a specific BH syntactic node identified as a CommaP, and thus a tool to explore constraining factors on its mapping to TH prosody. The OT interface constraint is stated formally in (5). All CP’s indentified in §4.2 are necessarily CommaPs; and we would otherwise expect pause systematically to occur immediately before the complementizer, at the right edge of an intonational phrase (Dresher 1994: §3.3).

(5) \text{ALIGN (COMMA P, I) = ALIGN COMMA P}
Align the edges of a comma phrase in syntactic (PF) representation with the edges of a corresponding intonational phrase in phonological (PR) representation.

4.5. An exhaustive study of 2001 environments immediately before \text{kî, ka’āşer, ’im, pen} was carried out. Pausal alternations of types 9 and 12, using the taxonomy of Goerwitz (1993: 23), are excluded.\textsuperscript{13} Findings are tabulated in Appendices 1-4. Observations and analysis are presented below.

5. The Poetic Accent System and the Minimum-Length Constraint

5.0. There are two systems of accentuation, both with their panoply of four grades of TH disjunctive accents (D0-D3) in addition to the many conjunctives (C). (The accents D1-D3 also come in two varieties: \textit{major} versus \textit{minor} (D0 is always major). The major accents are also termed “pausal” accents.\textsuperscript{14} The minor accents are elsewhere termed “final” (versus “non-final”: thus Dresher 1994, following Cohen 1969) and “near” (versus “remote”: thus the landmark study by Price 1990).) The convention of marking the minor accents with an “f” for “final” is adopted here for convenience: hence D1\textsubscript{f} is a minor accent of degree 1, as opposed to D1, which is a major accent of the same degree.
The initial strong claim to be pursued is that *pausal variants only appear with the TH major or “pausal” accents*, but fail to obtain on the minor accents, let alone conjunctives.\(^{15}\) This is clearly the case for those books marked up with the so-called “poetic” system of accents (Job, Proverbs, Psalms).\(^{16}\) The pause expected *ex hypothesi* with the CommaP systematically fails on the minor accents of the poetic system (6). N.B. in the transformational analysis of Price (1990, 1996), underlying accents may become “virtual” due to a host of musical transformations.

(6) Failure of expected pause on minor accents (poetic system):
- **D1f**: Job 16:3,7, 36:13,7; Pr 4:8,4, 19:18,3; Ps 18:8,8.
- **D2f**: Job 7:12,3; Pr 4:16,4; Ps 52:11,7 (virtual), 107:30,2 (virtual), 118:21,2.
- **D3f**: Job 10:3,3.

5.2. One very minor qualification must be made in two cases involving kî: Ps 143:8,4 and 143:10,4. In both cases, pausal phonology appears on *sinnôr* (D2f) serving `ôleh-øyôrêd (D1). However, further inspection shows that these are not true counterexamples, but rather reflect the output of a hitherto unidentified musical transformation. Both words bearing `ôleh-øyôrêd are monopods (bêtâhti, `êlôhây); thus the galgal (C) preceding is a virtual disjunctive (VD2f) by musical transformation, and the metheg (M) on kî is a virtual conjunctive (VC). In both instances in Ps 143, then, the “surface” *sinnôr* represents a virtual major disjunctive (VD2)—a virtual râbîa ` (D2) by transformation (7).\(^{17}\) In short, there is no true exception to the generalization here in Ps 143.

(7) \[ C \ D3f \ D2 \ C \ D2f \ D1 \rightarrow C \ D3f \ VD2 \ VC \ VD2f \ D1 \] (Ps 143:8a)

5.3. In light of the curious but systematic distribution of poetic pause in the database under review here, the question then becomes: what is determining that distribution? Surely the accents
are a symptom, not a cause: it seems implausible that the accentuation *per se* is driving pausal phonology. Admittedly, the tight correspondence of pause and the end of lines (including the odd run-on line\(^{18}\)) of BH poetry is not a coincidence (see Revell 1981); but this speaks more to the prosodic element in the metrical composition of BH poetry, and less directly to the determination of pausal phonology itself.

5.4. To understand the additional constraint on the realization of TH pause, let us consider the primitive chassis on which BH poetry is constructed (DeCaen 2009, 2011) in (8). (The head D0 in such representations is the default in the present study for convenience only.) Compare the implied prosodic structure *ex hypothesi* (DeCaen 2009) in (9), following Dresher (1994).

(8)
```
     0
    / \  \
   1   0
  /     /
C     D1f C     D0
```

(9)
```
     I
    / \ \
   φ   φ
  /     /
ω     ω  ω   ω
```

5.5. In the light of the prosodic analysis in (9), consider the asymmetrical contrast of the complementizer (*kî* for convenience) in (10) versus (11). What this implies is a *simple prosodic minimum-length constraint* on the projection of the TH prosodic I from the syntactic CommaP.
(10) Pause obtains before \( ki \)

\[
\begin{array}{c}
\text{I} \\
\phi & \phi \\
\omega & \omega \\
\omega & \omega \\
\omega & \omega \\
\end{array}
\]

(11) Pause fails before \( ki \)

\[
\begin{array}{c}
\text{I} \\
\phi & \phi \\
\omega & \omega \\
\omega & \omega \\
\omega & \omega \\
\end{array}
\]

5.6. To return to Selkirk’s framework, the specious contrast of TH major versus minor accent can be translated into an OT \textit{minimum-length constraint} on the intonational phrase (Selkirk 2005: (iv), p. 31 \textit{et passim}), formulated in (12) and outranking ALIGNCOMMAP (13). Hence, by (13) the syntax is a necessary but not sufficient condition in the realization of TH pause, as required. Notice that this explains for free the failure of \textit{wayyómer}, \textit{wayóhî}, etc. (see Appendices 1 & 2) to induce pause, despite the presence of a CommaP boundary.

(12) \textbf{Binary Minimum (I) = BinMin(I)}  
An intonational phrase (I) must consist of at least two phonological phrases (\( \phi \)).

(13) \textbf{BinMin(I) >> ALIGNCommaP}
5.7. The Binary Minimum also solves in principle the acute problem flagged by Revell (1980). He correctly notes (§4.1) that pause is generally induced by (a) the introduction of speech and (b) individual list items, citing data from classical Greek, Latin and also the Hebrew of the Mishnah. (There would be no problem at all adding data from modern languages including English.) He then clearly identifies the anomaly: in Tiberian Hebrew, pause rarely obtains before direct speech; and list items are grouped in twos and threes (see also Revell 1980: §2.2)—in defiance of “the conventions of other languages” (p. 171). However, if there is in fact a strong Binary Minimum constraint operating in TH, then the apparent puzzle abruptly disappears: pause expected according to “the conventions of other languages” would create defective intonational phrases.

5.8. The implied correspondence here between the end of the poetic line and the realization of pausal phonology answers a basic question that Dresher raises (1994: 13-14): why does the TH accent system systematically demarcate phonological phrases (ϕ), but systematically fail to mark the intonation phrases (I)? However, if the primitive poetic accentuation were designed in the first instance for the recitation of liturgical poetry, marking the intonational phrase would in fact be redundant (DeCaen 2009: 101): the major poetic accents already fulfill this function.

6. Generalizing to the Prose Accent System?

6.0. As a rough first approximation, the strong claim that pause is limited to the major accents, but fails on the minor accents, also appears correct in the so-called “prose” accent system. To pursue the strong claim, then, it is necessary to explain away those cases where (a) pause apparently fails on major accents against expectation; and also those few cases where (b) pause unexpectedly obtains on minor accents. Finally, the curious handful of instances of major
pause (otherwise expected only at the right edges of the half-verse (DeCaen 2005)) appearing on prose D1 accents deserve further attention, revealing a fundamental insight into TH intonation.

6.1. Since the distribution of pause relative to the TH CommaP is regular in the poetic system of accents, the strategy adopted here is to expose certain major accents in the majority prose accent system as *false friends* by reference to the rules of poetic accentuation. In other words, the strong claim is extended: the distribution of pause relative to the accentuation would be completely regular *if only the input were marked up with the poetic accents*.

6.2. The crux of the matter is the slight variability of pause on D1 in the prose system. However, on closer inspection, there is in fact a length distinction operating; furthermore, that length distinction can be explained directly in terms of the poetic logarmeh transformation.

6.3. The best dataset to observe the length contrast for prose D1 (zāqēp) is that of kaʿāšer (Appendix 2). The structure in (14) induces pause on the preceding D1. In stark contrast, the CommaP in (15) cannot induce pause. The more interesting case is the intermediate (16): here too pause fails—unexpectedly *ex hypothesi*, since there are presumably two phonological phrases (φ).

\[
\begin{array}{c}
0 \\
1 \\
\quad \text{C} \quad \text{D1f} \\
0 \\
\quad \text{C} \quad \text{D0} \\
\text{… 'immékā ka'āšer šiwwọkā YHW 'ēlōhékā} \quad (\text{Dt 5:16,6})
\end{array}
\]
6.4. Every failure such as (16) is subject to the *lagarmeh* transformation in the poetic system. The use of an “optional” auxiliary accent is perhaps one of the more spectacular examples of the way the prose and poetic accent systems fundamentally differ. The poetic auxiliary accent *mahpak-lagarmeh* (*Leg*) appears graphically as the conjunctive *mahpak* plus the vertical bar *päsêq* which otherwise signals minor disjunction (on *päsêq*, see further Widawski 1990); it also has its “virtual” counterpart (*V-Leg*) (Price 1990: (Rule 1a), p. 187; Table 47 and footnotes, p. 192; pp. 257-265).

6.5. The *lagarmeh* transformation is best understood by comparing those psalms with both prose and poetic mark-ups: 1Chr 16:8ff || Ps 105:1-15, 96:1b-13, Ps 106:1, 47-48; and 2Sam 22 || Ps 18. The construction is characterized by asymmetry, specifically deep right-recursion, as can be seen in the prototypical *lagarmeh* construction in the minimal pair 1Chr 16:10b || Ps 105:3b.
6.6. In the bottom-up prose system (Dresher p.c.) in (17), right-recursion generates an intrusive major D1, mandated by the lower D1f. By way of stark contrast, the intrusive major accent is suppressed, as it were, by a top-down constraint (Dresher p.c.) in the poetic system in (18): what appears here instead is the auxiliary accent mahpak-lǝgarmeh (Leg).

6.7. Another way to understand this phenomenon is to find a minimal pair in the prose system itself. There just happens to be one in the data under consideration: 1Sam 3:6,13 = 3:8,12 (19) versus 1Sam 3:5,6 (20). Whereas the intrusive major accent is tolerated in (19), that intrusive accent is typically suppressed in the lower-grade domain in (20). N.B. the lǝgarmeh is “virtual” (V-Leg) here, and the conjunctive on kî does not disappear altogether with imposition of the TH hyphen maqqēph, rather it still projects as a metheg (M) aka ga`yâ—a subtle but crucial distinction.
6.8. To make the logarmeh approach to the anomalies work within the present proposal, the output of the transformation must be understood as (21) → (22) with recursion, dictated by higher-level considerations in context. The transformation can be understood as a form of prosodic compression, explicable in terms of prosodic phonology as a “tempo” phenomenon (Dresher p.c.; see further Dresher 1994: §6, pp. 31ff). The output (22) is then interpretable by (12) (§5.6 above).

6.9. The transformation represented in (21) → (22) must not be construed as automatic. It is not. It is contextual, sensitive to larger top-down considerations (phrasing). To put it another way, a logarmeh configuration such as (21) can serve perfectly well as an I (Ex 33:3,15: D0 before ki). Indeed, left- and right-branching lines of three feet comprise half the well-formed
lines of Psalm 111 (DeCaen 2009: appendices 1 & 3), and dominate generally in this particular metre (DeCaen 2011).

6.10. Thus the strong claim amounts to this: the failures of pause on prose D1—and mutatis mutandis on D2—can be explained as either (a) defective phrases (two ω or less), insufficient to project an intonational phrase by constraints in (12)-(13); or as (b) lagarmeh constructions which would be suppressed at the faster “poetic tempo” (22), also falling within the scope of (12). A threefold classification of the failures of pause on prose D1/D2 is provided in Appendix 5.

6.11. The exceptions to §6.10 are surprisingly few. They are dealt with in the next section.

7. Exceptions List I: Failure of Pause on Major Accents (2x)

7.0. The elephant in the room is the anomalous contextual form rōʾî on the D0 at Gn16:13,9. In this case, the impossible contextual form is clearly a deliberate mistake. The difficulty here arises from the threefold contrast: the noun “sight” rōʾî (penultimate, pausal) and rōʾî (stress-shifting, contextual) versus the participle plus first-person suffix “sees me” rōʾî.

7.0.0. The possible confusion has been regulated by the Tiberian marginal apparatus (see further Kelley, Mynatt & Crawford 1998). The minimal pair with ô is tracked, and the differing phonemic stress-assignment noted. The scribes note in the margins23 that there are six forms in question: four with final stress (“sees me”), Gn 16:13,15, 16:14,4, 24:62,4, 25:11,13 (N.B. all Genesis); and two with penultimate stress (otherwise “sight”) 1S 16:12,9, Job 7:8,4.
7.0.1. There are a further two instances of the noun rōʾî with a preposition: Job 33:21,3 and Nahum 3:6,6. There is also an anomalous form of the participle plus suffix at Is 47:10,5, rōʾ ânî (guarded against correction to rōʾ énî by the marginal note).

7.0.2. Ironically, the nominal form at Job 7:8,4 must be a mistake. Presumably the scribes recognized it as a mistake, as has apparently every commentator to the present day. But that was the form they received, and that was the form they faithfully transmitted—a testament to the exacting method of scribal transmission.

7.0.3. It is precisely because of such easy confusion (§7.0.2) in the exegetically sensitive context of Gn 16:13-14, and because of the tremendous pressure exerted by the four other instances in Genesis with final stress (16:13,15, 16:14,4, 24:62,4, 25:11,13), that the tradition read instead the impossible contextual form at Gn 16:13,9 to ensure the unambiguous nominal reading: “God of sight” versus “God who sees me”. This has been the traditional explanation, following Rashi: נַכְדָּה וַתַּכְּלִית עַל אָרְחָי שֶם יְהוָה שֶם יָרְדֵּהוּ הָאֲלֹהִים.24 25

7.1. There is, then, only one apparent exception to the theory propounded thus far. This does not even amount to a rounding error: 1/2001 (0.000%).

<table>
<thead>
<tr>
<th>Micah 6:8,10</th>
<th>Contextual</th>
<th>Expected Pausal</th>
</tr>
</thead>
<tbody>
<tr>
<td>mimməkā⁵⁶</td>
<td>mimmēkā</td>
<td></td>
</tr>
</tbody>
</table>

7.1.0. The interesting question is: is the exception retrodictable? That is, given what we know about the forms involved (Goerwitz 1993) and their pointings, the frequencies of forms and their distributions, could the nature of this exception be predicted? The answer is: maybe so.

7.1.1. First consider the most frequent suffixes associated with pause, and the resulting enormous pressure from the spoken language to mistakenly read contextual forms. The nominal
suffix is always 2ms -kā; the hands-down most frequent verbal forms end in the plural suffix -ū.

Could it really be a coincidence that the lone exception bears the suffix -kā?

7.1.2. Consider next the graphic nature of the vowel diacritics. The schwa [ə] of stress-shifting contextual forms is indicated by two sublinear dots arranged vertically. The only sublinear graphemes with which the schwa can be confused just happen to be those indicating ē [ε] (two dots arranged horizontally) and e [ɛ] (three dots) at Micah 6:8,10. Could it really be a coincidence that the lone exception involves a [ɛ] ~ [ə] alternation?

7.1.3. The prediction is that all such exceptions will conform to the pattern in Micah 6:8. One conspicuous example appears in the present study in Appendix 6 (c3): `abdaḵā (Ps 119:65).

7.1.4. A second approach is to insist on the strong claim and refuse to admit an exception. Perhaps, then, the relevant phrase excludes the final D1 phrase waʿaḥabat ḥesed. Perhaps instead the determining structure is simply the lağarme configuration of the D2f: kī ’im—āšôt mišpāṭ. In the absence of sufficient data, the question remains moot.

7. Exceptions List II: Unexpected Pause on Minor Accents (3x)

8.0. Again there are surprisingly few apparent exceptions: 3/2001 = 0.001%. Two have explanations in an alternative reading tradition: what Revell (1980) calls the “pausal system” with “ancient roots” (p. 169). It turns out, following the general drift of the treatment of exceptions in §6, that this “ancient” reading tradition is consistent with the poetic system of reading.

8.1. The one very interesting counterexample is the oath formula hay—ʿānī “surely as I live …!” at Ek 20:3,19 on pašṭāʾ D2f. There are two ways to approach this exception.
8.1.0. It is important to note first of all that all 22 instances of this formula are pausal; even the one case on a conjunctive fails to rate a marginal note (Appendix 6: b4). This suggests some sort of lexical exceptionalism. (a) Perhaps the phrase is simply no longer analyzable, something along the lines of the exceptional name of the hockey team Maple Leafs (not Maple Leaves). However, there is already (b) a precedent for a lexical exemption: the very well attested exemption of the LORD’s name itself, read ’ādōnāy, crucially always as the exceptional major-pausal form (see n. 7).

8.1.1. However, the lexical-exception route is hardly consonant with the overall generative-phonological approach adopted in the present study. The prosodic avenue to pursue is some sort of special intonation that trumps the minimum-length constraint: a “super comma phrase”, as it were. This would parallel the English usage of the shriek or bang aka exclamation mark which “expresses very strong feeling” (Trask 1997: §2.3, pp. 9-11). This “super comma phrase” approach is the general tack taken below in §9.

8.2. The apparent exception of qirbékā at Nahum 1:14,15 on a D1f would be no exception at all if pointed with the poetic accents. The prose ’atnah D0 in Nahum 1:14 would be pointed here with the poetic ’ōleh wayörēd D1 at the half-verse. The poetic ’atnah-substitute, a rōbîa` sans mugrash (D1), would appear on qirbékā instead (see further Price 1990: 202-209): crucially a major accent, not the minor prose accent D1f. See, e.g., the pausal ’egrā’èkkā on the rōbîa` sans mugrash (D1) at Ps 86:7,4 in the present database. See further n. 18.

8.3. The suggestion as in §6 is that the anomalies disappear if repointed with the poetic accent system. The ancient “pausal system” continues consonant with the poetic reading.

8.4. The exception of lāk at Joshua 17:18,5 on a D2f is amenable to the same explanation. The verse as it stands is too long for a poetic reading. However, if the verse were broken in two
at the half-verse, the exception would disappear, since lāk would then sit on a D2—crucially a major accent, not a minor accent.

8.5. We need not imagine such a scenario: there is the smoking gun of the multiple accentual parses of the Ten Commandments (Ex 20:2ff, Dt 5:6ff). One is consonant with a poetic-style reading (the “lower” or sublinear accents, תָּשֶׁם תָּחתון), the other showing the sort of compression proposed in §8.4 (the “upper” or superlinear accents, תָּשֶׁם עֲלֵיָון). While the sublinear reading is consistent with the generalizations of the proposed theory, phrasing more or less by the standard length of a poetic line (and so presumably the older version), the superlinear reading creates exceptions—as does the prose system of accents generally, as we have seen repeatedly. To take the only relevant example, the ka’āšer at Dt 5:12,6 is associated with the D0 on ָּבַדָּשַׁה in the sublinear reading, but the extreme compression of the superlinear reading, versifying each commandment separately, assigns a D3f: a wild exception according to the theory being advanced here.

8.6. In this light, Ockham’s Razor suggests conflating (a) the poetic system of reading and (b) the sublinear reading of the Ten Commandments with (c) the ancient “pausal system” of reading. The discrepancies observed between the so-called prose system of accentuation and the pausal system (Revell 1980) are attributable, on this view, to the inherent mismatches induced by the secondary imposition of the prose-system reading. (The discourse-analytic factors governing the various degrees of compression itself are beyond the scope of this study.)

9. Exceptions List III: Major Pause on D1 (7x)

9.0. Major pause (or Pause2, see n. 7) boils down more or less to faithfulness to the TH lexical-phonological output. The expected reflex of TH /o/ is the rounded [ɔ], indicated by the
diacritic qâmēṣ; while [a] or [ə] obtain elsewhere. Only the Tiberian school, praised for its purity and excellence of Hebrew pronunciation (Chiesa 1979: ch. 2), accurately maintained (a) the [ɔ] ~ [a] contrast in addition to (b) the fine distinctions among reflexes of /r/ (p. 12; on /r/, see further Khan 1995, 1996). Indeed, one important function of the Tiberian marginal apparatus is to regulate the [ɔ] ~ [a]/[ə] alternation.

9.1. The distribution of pause relative to the major accents can be established using words that can display all three prosodic variants: (i) major pause, (ii) minor pause, (iii) contextual (DeCaen 2005). The strong generalization is that major pause obtains at the right edges of half-verses, regardless of the particular accent employed at the half-verse. Here is the source of endless confusion.

9.1.0. The fundamental correspondence rule of the two accent systems is given in (23): the first division of the sillûq phrase (D0). Where the primitive poetic system employs `atnah as the D1, the expanded prose system employs zāqēp. (In these diagrams, the convention of Price (1990) of representing the entire domain by a triliteral, all-caps abbreviation is adopted.)

9.1.1. One hallmark of the sort of metre instantiated in Psalms 111-112 (DeCaen 2009) is that the fundamental correspondence in (23) holds (DeCaen 2011). Thus the regular heartbeat of BH poetry, which is obscured by the musical transformations of the poetic system, is ironically heard loud and clear in the prose system. This metrical heartbeat is heard, e.g., in Lamentations 5 and in 1Chronicles 16:8ff. In these two “prose” examples, major pause regularly falls on zāqēp at
the half-verse: see Lam 5:5a, 1C 16:18a, 22a. If the Bible were to consist of nothing but this simple bilinear verse there would be no problems.

9.1.2. BH verse is not infrequently trilinear, and the trouble begins in the case of right recursion. The fundamental correspondence rule for right recursion is given in (24). Whereas the poetic system follows the iron law of branching nodes \( n \to n+1 \), introducing the auxiliary D1 ‘ఐథ వయోరేదు (OLE) at the half-verse; the prose system introduces instead a second D0. Just to keep things interesting, that secondary D0 is ‘ఐథా!’ (An example of trilinear right recursion can be found, e.g., in 1C 16:29.)

\[
\begin{array}{c}
\text{poetic} \\
\begin{array}{c}
\text{prose} \\
0 \\
1 \\
\text{OLE} \\
1 \\
\text{ATH} \\
0 \\
\text{SIL} \\
0 \\
\text{Σ} \\
0 \\
\text{ATH} \\
1 \\
\text{ZAQ} \\
0 \\
\text{SIL}
\end{array}
\end{array}
\]

9.1.3. In this light, the Tiberian shorthand for major pause makes sense: זקף אתנח׳ וס״פ. Exceptions to this generalization are strictly policed. The confusion-inducing use of ‘atnah (poetic D1, prose D0) does make some sense too: given the relative distributions of verse types, major pause will typically fall on ‘atnah in both chanting systems. There’s the rub. The accent ‘atnah becomes yoked in the mind—incorrectly—with major pause: an overgeneralization that might cause havoc in the pointing, especially in the so-called “poetic” books.

9.1.4. It is instructive to examine cases of pausal/contextual alternation involving the prose D1 zاغప and the poetic D1 ‘atnah. Minority oddballs are guarded against levelling with the majority, regardless of which variant happens to be in the minority: e.g., ‘elōhāy ~ ‘elōhay.
and (wā) ḥāyin ~ (wā) ḥāyin. In the absence of marginal notes, the iron law of the half-verse is implicitly in effect. Copying mistakes are thus identifiable where that iron law is violated in the absence of marginal notes: e.g., mîmmâ‘al ~ mîmmâ‘al.

9.1.5. Two apparent exceptions fall under the covering law in §9.1.1.: short lines of poetry where the right edge of the half-verse is marked by prose D1 zāqēp. Lam 3:22,6 tânnû is a trivial example (though it does draw a hapax note ‘7). The other non-exception at Micah 4:9,11 ‘ābād is deceptive, hinted at by the marginal note †[t] (twice [ɔ] on zāqēp). The note leads over to Is 57:1 where ‘ābād is quite anomalous. Moreover, the line Mi 4:9a itself bears another exception: bāk on D2. (In the sequel it will be seen that the line Mi 4:9a is quite unexceptional, since both ‘ābād and bāk bear the question intonation.)


9.2. One obvious way out is to invoke the theory proposed in §§8.4-8.6.: these exceptions would simply be telltale fossils of a time when the poetic reading was employed, and were subsequently pointed with a D1 by compression of verses characteristic of the so-called prose reading. This move, however, does not eliminate two glaring instances where the intonational phrase would violate the length constraint (12): Eccl 11:9,14 and Amos 6:10,18.

9.3. The two exceptions highlighted in §9.2. point to a significant generalization that is otherwise easy to overlook: 5 of the 7 anomalies involve an imperative or jussive (25). The odds of that coincidence are staggering.
9.4. Thus another avenue beckons: a **stronger degree** of TH pause is not subject to the minimum-length constraint. In other words, there are **at least two degrees of TH pause**, projected from two sorts of comma phrase, and thus two separate OT constraints.

9.4.0. In an homage to Goerwitz (1993), let us call the syntactic nodes **CommaP1** and **CommaP2**. In class 2 we find the special intonation of an imperative, corresponding to an exclamation mark, to which we can add the special intonation of a question, corresponding to a question mark (§9.1.5.).

9.4.1. To formalize this proposal, there must be three constraints, specified in (26)-(28) and ranked in (29).

(26) **Align (CommaP1, I) = AlignCommaP1**
Align the edges of a CommaP1 in syntactic (PF) representation with the edges of a corresponding intonational phrase in phonological (PR) representation.

(27) **Align (CommaP2, I) = AlignCommaP2**
Align the edges of a CommaP2 in syntactic (PF) representation with the edges of a corresponding intonational phrase in phonological (PR) representation.

(28) **Binary Minimum (I) = BinMin(I)**
An intonational phrase (I) must consist of at least two phonological phrases (φ).

(29) **AlignCommaP2 >> BinMin(I) >> AlignCommaP1**
9.4.2. The question remains, how can we test the revised theory in (29)? What is a CommaP2, that we may explore the theory further? Price (p.c.) suggests looking at the quite anomalous instances of pausal forms on conjunctives and lesser accents. A preliminary study thereof (Appendix 6) reveals the anticipated taxonomy: the list of intonation patterns that falls under CommaP2 *ex hypothesi* does appear to give the right sort of result:

- question intonation (?)
- imperative intonation (!)
- oath intonation (!)
- clause-final before poetic *sélā* (.)
- independent subject pronoun (predicate-subject in a verbless clause)
- doubling effect

9.4.3. The surprising discovery of a strong pause induced by subject pronouns in a predicate-subject order in a verbless clause is testable, given that there are three independent pronouns with pausal alternations, generating a huge database to explore. The somewhat exceptional example in Ex 33:3,10 (§6.9) might not be so exceptional after all: *kî `am—qəšeh—`ôrep `áttā, pen—`ākelkā baddârek.*

9.4.4. There still remain two exceptions that do not appear to involve CommaP2: (25b) and (25e). Nevertheless, they still fall under the original proposal in §9.2.: fossils of an earlier time. It must be added immediately that the two forms, ‘Ấyin and ‘Ấres respectively, belong to large, extremely problematic datasets (see my notes in the table above). It must be added that two problematic examples are hardly sufficient to vitiate the claims embodied in (29).
10. Conclusion

10.0. This study extends the research programme in Tiberian Hebrew prosodic phonology initiated by Dresher (1994). It adopts the syntax-driven theory of the intonational phrase proposed by Selkirk (2005), aligning Tiberian Hebrew pausal phonology with the “comma phrase”. A study of syntactic environments reveals a prosodic minimum-length constraint that trumps the comma-phrase projection.

10.1. The variability observed in the prose-accent system relative to pausal phonology disappears when reanalyzed in the poetic-accent reading. This in turn suggests the elegant theory that the “ancient” reading tradition identified by Revell (1980) might actually be the alternative, primitive poetic cantillation. The twofold reading of the Ten Commandments is also implicated in this proposal.

10.2. Consequently the conjecture in DeCaen (2009) is supported:

“why “twin” Tiberian cantillation systems? Perhaps because the simpler poetic system was designed to handle metrically simple and regular 2+2 verse that characterizes “truth” (Job, Proverbs and much of the Psalms), presumably with deep roots in the Second Temple liturgy. Subsequently, it might be conjectured, the primitive system had to be greatly expanded and articulated (including crucially the promotion of athnach to D0 status) to handle the challenge of reading extended prose passages in a similar fashion” (DeCaen 2009: 102).

10.3. Further investigation of variability in the distribution of major pause reveals a twofold classification of the Tiberian Hebrew comma phrase: one subject to the length-constraint (CommaP1), one absolute (CommaP2). The ranking of the three constraints, then, ALIGNCOMMAP2 >> BINMIN(I) >> ALIGNCOMMAP1 constitutes the theory of the Tiberian Hebrew intonational phrase and the distribution of pausal phonology.
### Appendix 1: kî

| Non-object D0f | Gen 26:3,7, 30:26,11, 32:11,10, 44:18,17, 47:15,19, 50:19,6; Ex 4:10,20, 5:11,8, 9:31,4, 18:18,10, 31:13,11; Lev 10:14,14, 17:14,16, 21:7,11; Deut 8:5, 10:12,8, 15:16,8, 16:3,12, 21:9,6, 28:9,9, 28:45,10; Josh 3:5; Ju 8:6,9, 8:22,15, 13:17; Ru 3:11,10 [min pair]; IS 1:22,4, 2:9,8, 15:26,8, 20:9,5, 22:23,13, 25:28,5; 2S 1:16,8, 9:8,5; 1K 2:7,9, 2K 17:40,4 [shm` ki-im], 2C 19:3,6; Ec 2:17,11, 7:18,11, 9:7,9, 11:6,9, 11:10,7; Is 26:9,8, 34:16,14, 48:8,12, 52:12,8, 64:6,7; Je 1:7,8, 1:19,6, 2:28,11, 4:6,7, 6:25,9, 9:3,9, 10:2,13, 10:7,9, 10:25,14, 13:15,5, 14:7,9, 15:20,12, 22:22,8, 30:11,7, 30:14,7, 34:5,17, 46:21,14, 46:28,11, 48:5,8, 50:38,5, 51:17,9; Lm 1:19,9; Ez 2:7,9, 7:19,21, 20:16,12, 23:34,9; Da 9:16,12; Ho 4:10,7, 9:4,15; Jonah 1:13,8; Hab 1:5,6, 3:8,10; Zech 8:17,12. |
| Non-object D1 (59) ~ 80% | Gen 18:5,8, 20:9,12, 33:11,6; Ex 3:11,7, 20:20,7 [Segh]; Lev 21:8,11 [fails ani!]; Num 10:29,23, 22:28,11; Deut 4:39,6 [Segh], 15:16,12, 15:18,8, 22:8,12, 28:41,7; Josh 5:15,11; Ju 2:17,6 [shm`], 8:15,18 [= 8:6,9], 11:12,12; IS 8:7,16, 10:7,13, 13:13,14, 17:28,30, 17:43,7, 20:3,24, 20:8,5, 21:16,4, 23:27,8 (?); 2S 15:14,10, 16:8,21; 1K 1:17,9; 2K 4:43,13, 20:1,19; 1C 5:22,5, 12:19,18; 2C 25:16,21, 30:18,11; Ez 9:15,6; Ne 8:10,19; Ec 2:24,15, 9:9,19; Ca 8:6,8; Is 38:1,19; Je 3:22,9, 14:22,16, 17:13,11, 20:3,17, 46:14,12; Lm 4:15,9; Ez 2:5,6, 12:2,19 [shm`], 21:37,10, 23:8,6, 40:4,17; Da 10:11,15; Ho 5:7,3; Amos 7:14,13; Jonah 1:12,13; Micah 5:3,10 [gadol]; Zeph 2:7,12; Zech 13:5,9. |
| Non-object D2 (poetry) | Ps 143:8,4 **D2f = VD2**, 143:10,4 **D2f = VD2**. |
| Fails D1 (16) | Gn 21:17,20, 32:27,9, 32:29,7, 35:17,9; Nu 6:12,14; Dt 1:42,10; Ru 3:9,12 [min pair]; IS 3:6,13 hinneni [= 3:5,6 D2f] = 3:8,12; 2S 24:10,26; 1C 21:8,18; Is 1:20,6, 25:1,7; Je 5:4,7, 22:17,5; Zech 10:5,8. |
| Obtains elsewhere | Josh 17:18,5 **D2f**, 1K 2:26,17 **D2**, 2C 6:36,4 **D2**, Ne 12:43,7 **D2**; Na 1:14,15 **D1f**. |
Fails elsewhere

**Gn 16:13,9 [on D0f].**
29:32,10 **D2**; Ex 33:3,10 **D2**; Dt **8:3,14 D2**;
Josh 9:24,**5** **D2** [mr] **HYPERCORRECTION**;
Ju 18:23,11 **D1f**; **IS** 3:5,6 [hinneni] **D2f**, 4:20,8 **D1f**, 28:13,6 **D1f**;
2S 22:8,9 **D1f**; 2C 19:6,12 **D1f**; Is 54:4,3 **D2f**, 54:4,8 **D1f**, 57:11,5 **D2f**;
Je 50:11,4 **D2f**; Ez 3:19,2 **D2f**, 3:21,2 **D3f**, 33:9,2 **D3f**;
Michah 6:8,**10 ki-im D2**.
Je 2:35,**2 D2f** [mr], 13:21,3 **D2f** [mr],

**Minor accents:**
Jb 10:3,3 **D3f**, 16:3,7 **D1f**;
Ps 18:8,8 **D1f**; 52:11,7 **VD2f**, 107:30,2 **VD2f**;
Pr 4:8,4 **D1f**, 19:18,3 **D1f**.

Fails w/Object

**Gen** 3:7,5 [yd'], 3:11,5 [higgid leka] 38:14,17 [r'h], 42:23,4 [yd'], 42:34,7 [yd'], 43:25,10 [sh-m-']; **Ex** 4:31,4 [sh-m-'], 29:46,2 [yd'];
**Num** 16:28,5 [yd']; **Deut** 29:5,10 [yd']; **Josh** 3:7,14 [yd'], 3:10,5 [yd'], 9:16,11 [sh-m'], 23:13,3 [yd']; **Ju** 14:4,5 [yd'], 20:34,15 [yd']; **1S** 4:6,15 [yd'], 12:12,2 [r'h], 14:22,8 [sh-m'], 22:17,17 [yd'], 25:10,9 [yd']; **2S** 3:38,7 [yd'], 14:22,15 [yd'], 19:21,4 [yd']; **1K** 14:2,9 [yd']; **2K** 3:21,4 [sh-m'], 7:12,16 [yd']; **2C** 22:10,5 [r'h]; **Ne** 6:16,15 [yd']; **Jb** 10:7,3 [yd']; **Ps** 59:14,6 [yd'], 78:35,2 [yd'], 83:19,2 [yd'], 109:27,2 [yd']; **Pr** 31:18,2 [+M];
**Je** 16:21,12 [yd'], 26:15,4 [yd'], 40:11,13 [sh-m']; 42:19,11 [yd'], 42:22,4 [yd'], 44:29,14 [yd']; **Lm** 1:21,2 [sh-m'];
**Ho** 2:10,4 [yd'], 11:3,9 [yd'].

Fails wayyomer ki, etc.

**Gen** 21:30,2, 26:8,2, 26:22,13, 27:20,11, 29:33,6, 37:35,10;
**Ex** 2:10,13, 3:12,2, 4:25,11, 17:16,2;
**Jb** 36:10,5; **Is** 39:8,11.

Fails wayehi ki

**Gen** 6:1,2, 27:1,2, 43:21,2, 44:24,2; **Ex** 1:21,2, 13:15,2;
**Josh** 17:13,2; **Ju** 1:28,2, 6:7, 16:16,2, 16:25,2;
**2S** 6:13,2, 7:1,2, 19:26,2; **2K** 17:7,2;
**Jb** 1:5,2 (prose).

Beginning verse

if Ps 91:9; Pr 24:12
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inducing major pause</strong></td>
<td>**Gen 3:19,12, 6:7,19, 21:31,6, 41:32,7, 43:10,4, 43:25,8; Ex 4:19,9, 12:9,8, 12:30,13, 14:12,14, 19:23,12, 33:3,6, 33:20,7; Lev 9:4,10, 13:52,22, 21:14,9; Num 7:9,5, 12:1,11, 14:43,8; Deut 2:5,13, 9:25,12, 24:6,5, 32:36,8, 33:9,15 [yd’]; Josh 11:10,12, 23:10,6; Ju 8:5,11; 1S 1:5,6, 1:16,8, 2:24,3, 3:20,7, 21:9,12, 21:10,20 [D1]; 2S 5:24,11, 17:10,11; 1K 1:30,19, 8:19,6, 9:22,7, 14:11,11, 17:7,6, 22:49,11; 2K 11:15,21, 23:9,10, 25:26,11; 1C 7:4,11, 28:6,9, 28:20,12; 2C 6:9,6, 7:9,5, 8:14,24, 11:14,10, 12:2,12, 20:10,17, 23:14,19, 30:5,17, 30:26,5; Ezra 8:22,11; Ne 7:2,11, 13:6,6; Ec 3:19,23 [D1], 4:17,14, 11:1,6, 11:9,14 da’! [D1 gadol]; Is 3:8,6, 4:5,17, 12:2,7, 19:20,8, 24:18,13, 28:27,11, 28:28,3 [D1], 45:22,7, 49:10,9, 52:9,6, 57:20,4, 58:7,9; Je 9:18,13 [D1], 10:14,9, 11:15,11, 15:14,7 [yd’] = 17:4,14 [yd’], 18:12,3, 30:21,11, 35:6,5, 39:12,10, 46:19,8, 48:44,13, 49:23,5? [D1]; Lm 1:22,13, 3:22,6 [D1 no D0f]; Ez 3:7,12, 3:27,16 [D1], 7:12,11, 31:14,23; Da 8:19,9, 11:27,12 [D1]; Ho 4:6,5, 10:13,8, 11:9,9, 11:10,6; Joel 1:13,12; Amos 6:10,18 [D1]; Micah 4:9,11 [D1], 6:2,9, 7:8,8; Na 2:1,13; Hab 2:18,10; Mal 2:11,7.</td>
</tr>
</tbody>
</table>
## Appendix 2: ka’āšer

<table>
<thead>
<tr>
<th>Non-object D0f</th>
<th>Ex 40:32,9; Dt 2:12,12; Js 23:8,6; 2C 7:18,5.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-object D1 (poetry)</td>
<td>Ps 56:7,7.</td>
</tr>
<tr>
<td>Non-object D1</td>
<td>Dt 5:16,6, 13:18,17; Js 1:17,14; 1S 20:13,23.</td>
</tr>
<tr>
<td>Non-object D2 (poetry)</td>
<td>Fs 2:16,10.</td>
</tr>
<tr>
<td>Fails D1</td>
<td>Gn 34:12,7, 43:14,16; Dt 12:21,19, 15:6,5, 19:8,7; Ju 11:7,16; 1S 2:16,10.</td>
</tr>
<tr>
<td>Obtains elsewhere</td>
<td>Nu 11:12,15 D2.</td>
</tr>
<tr>
<td>Fails elsewhere</td>
<td>Gn 40:14,5 D2; Dt 12:20,7 D2f; Mi 3:3,12 D2f; Zc 1:6,14 D2.</td>
</tr>
<tr>
<td>Fails wayehi</td>
<td>Gn 12:11,2, 20:13,2, 24:22,2, 24:52,2, 27:30,2, 29:10,2, 30:25,2, 37:23,2, 41:13,2, 43:2,2; Ex 32:19,2; Dt 2:16,2; Js 4:1,2, 4:11,2, 5:8,2; Ju 3:18,2, 6:27,12, 8:33,2, 11:5,2; 1S 8:1,2, 24:2,2; 2S 16:16,2; 2K 14:5,2, 14:5,2; 1C 17:12,2; 2C 25:3,2; Ne 4:1,2, 4:6,2, 4:9,2, 6:1,2, 6:16,2, 7:1,2, 13:19,2; Je 39:4,2; Zc 7:13,2.</td>
</tr>
<tr>
<td>Beginning verse</td>
<td>Ex 1:12, 16:34; Lv 4:10, 8:34; Nu 1:19, 27:14, 36:10; Dt 2:22, 2:29; Js 8:31, 11:15, 14:5; 1S 12:8, 24:14, 28:18; 2S 20:13; 1K 1:37; Ec 5:3, 5:14, 8:16, 11:5; Is 10:10, 23:5, 52:14; Ek 20:36, 37:18; Da 9:13; Ho 7:12; Am 5:19.</td>
</tr>
<tr>
<td>Inducing major pause</td>
<td>Gn 30:38,9; Ex 1:8,6, 39:5,15, 39:31,9, 40:19,12; Lv 4:20,3 [D1 ~ oleh]; Nu 27:13,8; 1K 5:19,8, 21:11,13; Je 7:15,5, 27:13,8.</td>
</tr>
</tbody>
</table>

**Double reading:** one ~ poetic, one ~ prose! Deut 5:12, etc.
## Appendix 3: 'im

<table>
<thead>
<tr>
<th>Non-object D0f</th>
<th>Ju 11:30,6 [wayyomar]; Ezek 35:6,12; Amos 3:6,8.</th>
<th>Ezek 35:6,12; Pr 23:2,4, 24:14,5 [oleh].</th>
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<tbody>
<tr>
<td>Non-object D1</td>
<td>Job 10:4,4, 13:8,3, 39:9,4, 39:13,4; Pr 23:2,4, 24:14,5 [oleh].</td>
<td></td>
</tr>
<tr>
<td>(poetry)</td>
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<td></td>
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<tr>
<td>Non-object D1</td>
<td>Josh 24:15,13 [segh]; 2S 11:11,30; Es 7:3,5 [wattomar]; Je 40:4,10 [segh], Ek 17:19,8 [segh], 33:27,10 [segh]; Hab 3:8,7.</td>
<td></td>
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<tr>
<td>Non-object D2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(poetry)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fails D1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obtains elsewhere</td>
<td>2S 24:13,15 D3; Ezek 20:3,19 D2f [but see 33:27,10 D1 segholta] hay-ani; Micah 4:9,8 D2.</td>
<td></td>
</tr>
<tr>
<td>Fails elsewhere</td>
<td>Nu 5:27,5 conj, 32:5,2 D2; Josh 5:13,22 D1f; 1S 6:3,2 D2; 1K 9:4,2 D3f; 2K 2:2,19 D1f = 2:4,17 = 2:6,16 = 4:30,8; 2C 7:17,2 D3f; Obadiah 1:5,5 D2f, Jb 7:12,3 D2f; Pr 4:16,4 D2f.</td>
<td></td>
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</table>
## Appendix 4: *pen*

<table>
<thead>
<tr>
<th>Non-object D0f</th>
<th>Ex 19:22,7; Deut 6:15,7.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-object D1</td>
<td>Ex 33:3,15; Deut 7:25,12 = d0; Josh 2:16,5 = d0; Is 28:22,4.</td>
</tr>
<tr>
<td>Non-object D2 (poetry)</td>
<td></td>
</tr>
<tr>
<td>Fails D1</td>
<td>Ex 23:33,4.</td>
</tr>
<tr>
<td>Obtains elsewhere</td>
<td></td>
</tr>
<tr>
<td>Fails elsewhere</td>
<td>Lv 10:7,6 D2f; Je 10:24,7 D1f.</td>
</tr>
<tr>
<td>Fails w/Object</td>
<td>Nu 16:34,9 [’mr], 2K 10:23,13 [r’h];</td>
</tr>
<tr>
<td></td>
<td>Cf. <em>hiššāmer ləkā pen</em></td>
</tr>
<tr>
<td></td>
<td>Gen 24:6,6, 31:24,12;</td>
</tr>
<tr>
<td></td>
<td>Ex 34:12,3;</td>
</tr>
<tr>
<td>Beginning verse Be careful not to</td>
<td>Ex 34:15; Deut 4:16, 4:19, 8:12, 9:28, 19:6, 29:17;</td>
</tr>
<tr>
<td></td>
<td>Is 36:18; Jer 51:46; Ho 2:5.</td>
</tr>
<tr>
<td></td>
<td>Job 32:13;</td>
</tr>
<tr>
<td></td>
<td>Ps 7:3, 13:5;</td>
</tr>
<tr>
<td>Inducing major pause</td>
<td>Deut 22:9,5; Is 6:10,9 (pausal pathah?).</td>
</tr>
</tbody>
</table>
Appendix 5: Failures of Pause on Prose D1 (32x)

A6.0. Pause on the prose D1 would create a defective intonational phrase (two words or less).  

\[8x:\]
Gn 21:17,20, 29:32,10; Nu 32:5,2; Dt 8:3,14; Js 9:24,5; 1S 6:3,2; Je 5:4,7;
Zc 1:6,14.

A6.1. The prose D1 would be a D1f due to the logarmeh transformation in the poetic system of chanting.

A6.1.0. The construction is right-recursive (logarmeh).

\[7x:\]

A6.1.1. The construction is left-recursive (logarmeh).

\[lx:\]
Dt 19:8,7.
A6.1.2. The construction is left-recursive (virtual *logarmeh*).

```
  n
 / \   /
V-Leg C   V-Leg
   /   /
  n   Dn
```

16x:
Gn 34:12,7, 35:17,9, 43:14,16; Ex 23:33,4, 33:3,10; Nu 6:12,14;
Dt 1:42,10; Ru 3:9,12; 1S 2:16,10, 3:6,13, 3:8,12; 2S 24:10,26; 1C 21:8,18;
Is 1:20,6, 25:1,7; Ze 10:5,8.
Appendix 6: Pausal Forms on Lesser Accents

A6.0. The tokens analyzed below are extracted from a study of pausal forms kindly provided by Price (p.c. May 2011). (Price’s 877 tokens of putative pausal forms on minor accents in the so-called prose system will be deferred to an independent study.)

A6.1. Candidates for CommaPhrase2, based on the data analyzed in this appendix, are:

- question intonation (b7)
- imperative intonation (c4)
- oath intonation (b4)
- clause-final before poetic sélâ (a2)
- independent subject pronoun: predicated-subject in verbless clause (a4, b8)
- doubling effect (b5)

A6.2. The extreme variability of the so-called “free” forms of the shape /CaCC/ (a1, a3, b1, c1, c5, c7, c8) deserves its own study. In the meantime, this data is excluded from consideration, as is the variable (wā) ûreș (a6, b6, c6, c11).
Sigla

$\text{ath} = \text{’atnah} \ (D1)$
$L = \text{L19a Leningrad Codex}$
$A = \text{Aleppo Codex, Jerusalem Crown edition (2000).}$
$\text{BHS} = \text{editorial notes to Biblia Hebraica Stuttgartensia}$
$\text{mah} = \text{mahpakh}$
$\text{mer} = \text{merokh’}$
$\text{Mm} = \text{L masora magna, edited by Weil (1971).}$
$\text{Mp} = \text{L masora parva, edited by Weil in BHS.}$
$\text{mun} = \text{minah}$
$\text{sil} = \text{silluq \ (D0)}$

a. Pausal Forms on Conjunctives in the Poetic Accent System (6x)

<table>
<thead>
<tr>
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<th>mun</th>
<th>ath</th>
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<tbody>
<tr>
<td>2</td>
<td>Ps 3:9,5</td>
<td>birkātēkā</td>
<td>mun</td>
<td>sil</td>
</tr>
<tr>
<td></td>
<td>Ps 74:14,7</td>
<td>‘$\text{ām}$’</td>
<td>mun</td>
<td>sil</td>
</tr>
<tr>
<td>4</td>
<td>Ps 119:125,1</td>
<td>‘$\text{abdokā—’ānî}$’</td>
<td>mer</td>
<td>ath</td>
</tr>
<tr>
<td>5</td>
<td>Pr 7:22,5</td>
<td>‘$\text{el—’tābah}$’</td>
<td>mun</td>
<td>ath</td>
</tr>
<tr>
<td>6</td>
<td>Pr 25:3,3</td>
<td>‘$\text{wā’āres}$’</td>
<td>mun</td>
<td>ath</td>
</tr>
</tbody>
</table>

b. Pausal Forms on Conjunctives in the Prose Accent System (8x)

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<th>mun</th>
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<tbody>
<tr>
<td>1</td>
<td>Ju 9:36,8</td>
<td>hinneh—‘$\text{ām}$’</td>
<td>mun</td>
<td>D1 See #a1.</td>
</tr>
<tr>
<td>2</td>
<td>2S 3:34,1</td>
<td>yādekā</td>
<td>mun</td>
<td>D2 Sic A.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>BHS: mlt Mss [plural yādekā] cf Greek, Syriac, Vulgate.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>This is not a pausal form.</td>
</tr>
<tr>
<td>3</td>
<td>Es 4:8,7</td>
<td>bošūšān</td>
<td>mah</td>
<td>D2f Sic A. No Mp.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This is not a pausal form.</td>
</tr>
<tr>
<td>4</td>
<td>Is 49:18,9</td>
<td>ḥay—‘$\text{ānî}$’</td>
<td>mun</td>
<td>D2 Sic A. No Mp.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ḥay—‘$\text{ānî}$ 22x: always as pausal.</td>
</tr>
<tr>
<td>5</td>
<td>Is 65:1,8</td>
<td>hinnēnī</td>
<td>mun</td>
<td>D1 Sic A. No Mp.</td>
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<tr>
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<td>“Doubling”; see further Goerwitz (1993: n. 22, p. 7; another example Ps 68:13).</td>
</tr>
<tr>
<td>6</td>
<td>Is 65:17,6</td>
<td>‘$\text{wā’āres}$’</td>
<td>mun</td>
<td>D0f See #a6, c11.</td>
</tr>
</tbody>
</table>

8. Ma 1:6,8  * âm*  VD3f  D3f  *Sic* A. No Mp.  Clause-final pronoun.

---

c. Pausal forms elsewhere in poetic accent system: on D2 or less (31x)*

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</table>
| 2. | Ps 18:2,1  | *wayyōmār*  | D3  | *Sic* A. Major pause at half-verse:  
On D3 *pāzēr*, see Price 1990: 254ff.*)  
(On D3 *pāzēr*, see Price 1990: 254ff.)  
*ژاَيِ نَمِمُ رِؤُسُهُمُ بِنِيُ أَمِيْنِ  
Mm 1660: Nu 11,11, 1S 20:8, 23:11,  
2S 18:29, 1K 1:26, 8:53, Ps 19:14;  
Exception: Ps 119:65 [، رَهَّامُهُ].|
| 3. | Ps 19:14,4  | *‘abdēkā*  | D2  | Pause expected.  
*ژاَيِ نَمِمُ رِؤُسُهُمُ بِنِيُ أَمِيْنِ  
Mm 1660: Nu 11,11, 1S 20:8, 23:11,  
2S 18:29, 1K 1:26, 8:53, Ps 19:14;  
Exception: Ps 119:65 [، رَهَّامُهُ].|
Imperative, imperative. |
| 6. | Ps 44:4,5  | *‘āres*  [major pause]  | D2  | *Sic* A in minor pause.  
*ящِ ۚۚمُرُ ۚ نَمِمُ رِؤُسُهُمُ بِنِيُ أَمِيْنِ  
Mm 1234: Dt 32:13, Is 14:9, 14:21,  
33:9, 44:23, 49:13, 51:13, 51:16,  
52:10, Je 9:18, 16:19, 31:8, Zc 12:1,  
Ps 44:4.  
[Comment: Is 51:13 & Je 31:8 on *segholta;  
elsewhere in prose accent system on *zaqeph*, but all cases in which four poetic  
lines compressed. Two anomalous cases are  
sentence-final: Je 16:19 & Ps 44:4.]  
Exceptions [‘ēres]: Ps 35:20, 48:11,  
Pr 30:14, 30:21.  
[Comment: Ps 35:20 & Pr 30:14 in minor  
pause only; but Ps 48:11 & Pr 30:21 certainly  
exceptional in major pause.]* |
| 7. | Ps 62:9,5  | *‘ām*  | D2  | See #a1. |
| 8. | Ps 72:4,2  | = Ps 62:9,5  |   |   |
| 9. | Ps 79:3,5  | *yarūšālāyim*  [major pause]  | D1  | *Rōvia sans mugrash* as substitute for  
*ژاَيِ نَمِمُ رِؤُسُهُمُ بِنِيُ أَمِيْنِ  
Mm 2491: Je 8:1, 13:13, Ps 79:3,  
116:19, 135:21, 137:5, 137:7,  
Ne 13:20.  
[Comment: All at half-verse: *oleh* Ps 137:7;  
elsewhere in poetic system *rōvia as ath  
substitute*; in prose system, *all D1f* on half- |
verse, and clearly vis-à-vis of poetic structure, i.e., ʿoviṣ as ath.]
Exception: Ps 137:6.
[Comment: Unexceptionally minor pause in presence of ʿoleh.]

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<tbody>
<tr>
<td>10.</td>
<td>Ps 96:10,4</td>
<td>mālāḵ [major pause]</td>
<td>D2</td>
</tr>
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<tr>
<td>11.</td>
<td>Ps 146:6,3</td>
<td>wāʿāreṣ</td>
<td>D2</td>
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<tr>
<td>12.</td>
<td>Pr 30:4,4</td>
<td>wayyērād</td>
<td>D3</td>
</tr>
</tbody>
</table>

*Sic A in minor pause. No Mp. [Comment: almost as if originally D1 ʿoleh in trilinear verse, i.e., implied slight variance in division of trilinear verse.]*

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<tbody>
<tr>
<td>10.</td>
<td>Ps 96:10,4</td>
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<td>D2</td>
</tr>
<tr>
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<tr>
<td>11.</td>
<td>Ps 146:6,3</td>
<td>wāʿāreṣ</td>
<td>D2</td>
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<tr>
<td>12.</td>
<td>Pr 30:4,4</td>
<td>wayyērād</td>
<td>D3</td>
</tr>
</tbody>
</table>

*Line-final, minor pausal forms are expected on D2:*
Bibliography


Acknowledgements:
...
Price: prompt and helpful feedback; computational analysis, databases.
...


4 To be clear, the accentuation is not itself a prosodic representation. This might be the mistaken impression from reading, e.g., Churchyard (1999: 222-252). The way the accentuation varies relative to the syntax simply suggests that it is sensitive to an abstract intermediate syntax that Dresher (1994) identifies as prosodic. We know independently that the accentuation has its own rhyme and reason, and has its own constraints and transformations. There are thus several intermediate “levels” separating the syntax from the music.

5 [make note of Kirk Lowery’s work on the syntax parser, update, prospects.]

6 On Optimality Theory, start with Prince & Smolensky (2004); then see Archangeli & Langendoen (1997) and Kager (1999).

7 There are two types of pausal forms; accordingly, some words have three prosodic variants, which is a boon for analysis (DeCaen 2005). Minor pause (Goerwitz 1993: Pause1) involves alternation in stress-placement: kātābū in pause, kātabū elsewhere. Major pause (Goerwitz 1993: Pause2) involves instead faithfulness in vowel quality: e.g., faithfulness to round reflexes in kātāb [kːθːβ] in major pause, kātab [kːθaːβ] with the vowel unrounded elsewhere.

   In generative perspective, the traditional view that the contextual forms are basic and the pausal forms “lengthened” (Churchyard 1999) is, to put it mildly, “linguistically absurd” (Goerwitz 1993: 24): a “persistent misconstrual”, “pervasive, yet quite indefensible” (p. 74).

   In historical-linguistic perspective, it is “generally agreed that pausal forms reflect the vowel patterns of a stage of the Hebrew language somewhat earlier” than that of the Tiberian dialect (Revell 1980: 170).

   The derivational argument is two-pronged. Prince (1975) shows that a simple Main Stress rule ((2), p. 19) must proceed the syncopating rule of Vowel Deletion ((3), p. 24). Goerwitz (1993) and DeCaen (2005) both show that the direction of predictability is necessarily major-pausal > minor-pausal > contextual.

   In optimality-theoretic perspective, it can be shown that the contextual forms optimize the iambic accentual-syllabic rhythm—probably under pressure from Aramaic prosody—whereas the pausal forms optimize the underlying moraic structure (in progress).

   (It is moot in the present context how far back the original stress-placement rule goes, but I would be prepared to argue it goes back to Proto-Semitic itself. The more interesting question is: at what stage did the contextual stress-shifting develop? It turns out that the pausal and contextual forms have different metrical weights in TH phonology. The metre of BH poetry suggests that in some poems the pausal forms must be read exclusively; whereas, in others, the TH pause/context pattern must be read (DeCaen 2011). This in turn suggests that the shifting began sometime late in the biblical period itself—probably under Aramaic influence.)

8 The inadequacy of phonological marking necessitates, according to Goerwitz (1993), a “positional definition”: I’s “must be defined positionally... i.e. in terms of [syntactic] constituents, and not in terms of the vocalic and accentual changes...” (p. 2). Since it is by no means clear where such boundaries are, “it is vital that we have some alternate, corroborative means of classifying a given [syntactic] position as ending what the Tiberian tradition assumes to be a “major” constituent” (p. 3).
The ubiquitous 'ăšer and the many other compounds with prepositions in addition to ka'ăšer deserve their own study. (There are a handful of other complementizers that might be added too.)

For convenience only the traditional but *patently incorrect* transcription system of TH is employed here. Goerwitz (1993) is certainly correct to insist that a proper understanding of the actual medieval phonetics is required in the generative analysis of pausal phonology, and to point out that TH vowels (quality, quantity) and syllables (structure, weight) have been clearly understood since at least Khan (1987; see further 1996): see Goerwitz’s valuable compare and contrast of Qimhian orthodoxy and Tiberian reality (pp. 8-18). For Qimhian orthodoxy, compare Churchyard (1999).

CP for complementizer phrase.

Gn 24:6,6, 31:24,12; Ex 34:12,3; Deut 6:12,3, 8:11,3, 12:13,3, 12:19,3, 12:30,3, 15:9,3. (The pronominal lakâ moves to satisfy morpho-phonological constraints (a type of cliticization to the verb).)

The “pausal pathah”, which deserves carefully study on its own [see “The Pausal Pathah in Biblical Hebrew”, in Fassberg & Hurvitz, 2005?], are implicated in these alternations. I believe the ultimate solution to such problems lies in expanding the TH inventory of phonemic vowels beyond /i, a, u/—and by extension, the inventory of proto-Semitic.

Thus Goerwitz (1993: 6-7). Curiously, the major D3 pāzēr is not included among these “pausal accents”, though the present study implies that it is. Goerwitz also notes, following Revell (1980), that these accents “are not intrinsically pausal” (p. 7). Yet he also notes that the correlation of pausal accents and pausal phonology is “close enough” to offer “a fairly consistent, independent mark of “pausality”” (p. 8): “the cantillation marks may be considered reliable aids to the location of pausal forms” (p. 8). Cf. Churchyard (1999: §3.4, esp. 597). The glass is both half-empty and half-full.

Of course, pause does infrequently occur on conjunctives and minor disjunctives. See §9.x and Appendix 6.

A total of four oddball counterexamples in the poetic system are analyzed in detail in Appendix 6: conjunctives a2 and a4; minor disjunctives c4 and c10.

“Great Rebia never occurs without its companion near segment…” (Price 1990: 247).

It is curious how such run-on lines, running on to the metrical caesura of the next line, are distributed: they tend to mark ends of stanzas and other major units of poetry. Representative examples include Job 3:26 at the end of the chapter 3; and Jonah 2:10 at the end of the poem, and also Jonah 2:6 running into 2:7 at the major stanza break.

This minimum may explain some exceptions beyond the present study where pause fails on a major accent. A conspicuous example, amenable to such an explanation, is the failure of pause with bitnakâ on athnach (poetic D1) in Psalm 132:11.

Minor disjunctive accents become virtual by transformation when the following phrase is a monopod; see further Price (1990) for his analysis of this crucial transformation. See DeCaen (2008) for the use of this transformation in understanding TH metrical structure.

The pausal form is hinnēnî, and generally occurs on a D0 (Gn 22:1,13, 22:11,11, 27:1,18, 31:11,8, 37:13,14, 46:2,10; Ex 3:4,15; 1S 3:4,6, 3:16,9; 2S 1:7,7; Is 52:6,12, 58:9,7 (athnach)); it occurs once on D1 at the half-verse in Is 65:1,9).
In addition, there are two odd cases where the form is *hinnênnî. The instance at Gn 22:7,9 is clearly contextual on the conjunctive munach. The ambiguous case at Gn 27:18,7 on the D1 must also be contextual according to the analysis presented in this paper. The suggestion, then, is that the variant is necessarily contextual, whatever else it is. Why the contextual hinani does not obtain is a curious problem.

Finally, there is an oddball pausal form on the conjunctive munach: ʾāmartî hinnênnî hinnênnî “I said, here I am, here I am” (Is 65:1). Goerwitz (1993) dubs this particular pausal phenomenon “doubling” by attraction (n. 22, p. 7), and cites another oddball, Ps 68:13: yiddôrûn yiddôrûn. (See further Appendix 6).

22 On the TH sandhi rule of external gemination, see further Revell (1988, 1989). Notice that this rule, as is the rule of spirantization, is sensitive to the surface accentuation, not the underlying prosodic structure; this contrasts with the sandhi rule of stress-retraction in cases of stress-clash (see Revell 1987). [do I need to say more?]

23 For convenience, references here are always made to the considerably edited marginal apparatus of the Leningrad Codex in Biblica Hebraica Stuttgartensia (BHS); for lucid explanations of this editing by Gérard Weil, see Mynatt (1994: ch. 1).

24 “[The form in question] is pointed ֹ because it is a noun, [hence] “God of sight”, …”.

25 [Consult some recent commentaries for colour-commentary]

26 Sic Aleppo Codex; no marginal annotation.

27 Sic Aleppo Codex, no marginal note.

28 The exception is the conflating of the first two commandments into one verse.

29 It is true that the vowel is standardly reconstructed as *a. Qimhian orthodoxy (see n. 10) drives the traditional analysis with its underlying /a/, beginning with Prince (1975). However, the simplest TH generative-phonological analysis should posit an underlying /o/—not /a/—as the straightforward explanation of the following correspondences. To the best of my knowledge, this analysis with an underlying /o/ has never been proposed.

   *long  /i/  [i]  [o]  [u]  *short  [e]  [ə]  [o]  TH schwa  [ɛ]  [a]  [ɔ]

30 The seminal study by Price (1990) takes issue with the strictly dichotomous (binary branching) theory assumed here, offering a series of nine arguments against dichotomy and in favour of a flat structure (“The Law of Continuous Dichotomy”, pp. 171-185). A thoughtful and detailed critique of Price’s critique is well beyond the scope of the present study.

31 Zāqēp (D1), ʾatnah (D0) and sillûq (D0).

32 E.g., the major-pausal form wakāʾ as on D2 at Psalm 112:10,3, flagged בַּכָּא וַתְּהִי פְּתֵיה. (The other instance wakāʾ as is at Eccl 5:16,6 on a conjunctive.)

33 The word אָלָלִי occurs 120 times (with or without an inseparable prefix). Two separate notes guard the minority variants: one guards [ɔ] against correction in the prose system, the other guards [a] against correction in the poetic system.
The issue in the prose books is the variation on **D1 zaqēp**. An anomalous major-pausal form מַמַּעְלָה (Mm 960) occurs 6 times on prose D1 (Nu 22:18,21, Dt 18:16,17, 26:14,16, 1K 3:7,3, 17:20,6, 17:21,11), once on prose D2 ravi'ah' (2C 2:37), and once more on the poetic D1 substitute for 'atnah, ravia' sans mugrās (Ps 35:24,4). (N.B. technically the last token is therefore not a true exception.) A further two instances on poetic D1 'olah wayorēd are omitted from this list (Ps 71:22,7, 143:10,6). [check: is 'olah subsumed under thetah??!!] The non-major-pausal form מַמַּעְלָה on D1 occurs 8 times (1C 29:3,4, 29:17,2, Neh 13:22,17, Is 61:10,6, Dan 9:19,11, 9:20,14, Ho 9:17,2, Zech 14:5,21).

The parallel issue in the poetic books is the variation on **D1 'atnah**. A non-major-pausal form מַמַּעְלָה (also Mm 960) occurs twice (Ps 84:11,9, 86:2,9)—correctly in the presence of D1 'olah wayorēd. Major-pausal form מַמַּעְלָה obtains elsewhere on 'atnah 13 times: 8 times in its role as prose D0 (Dt 4:5,9, 1K 5:19,7, 8:28,8, 2C 6:19,8, Neh 13:29,3, Ho 9:8,4, Joel 1:13,11, Zech 11:4,4); and 5 times in its role as poetic D1 in the Psalms (Ps 5:3,5, 13:4,4, 30:3,2, 59:2,3, 109:26,3)—correctly at the half-verse in the absence of D1 'olah wayorēd.

34 The case of מַמַּעְלָה together with the form with the inseparable conjunction מַמַּעְלָה is somewhat complicated; and even better, it is red-flagged by Gérard Weil as “sub loco”, meaning that the marginal apparatus is in some way inadequate if not incorrect (on the vexed question of sub loco notes in the Biblica Hebraica Stuttgartensia, see the enlightening thesis by Mynatt 1994). (Forms of מַמַּעְלָה, מַמַּעְלָה, and מַמַּעְלָה also occur.)

The major-pausal form מַמַּעְלָה 'אֵין is correct on the poetic D1 'atnah (Pr 14:6,4); yet it draws the note מַמַּעְלָה in the presence of the non-major-pausal form מַמַּעְלָה 'אֵין on poetic D1 'atnah at Jb 3:9,6 and Ps 69:21,7; but these are also correct in the presence of D1 'olah wayorēd. Major pause does occur twice on D0 sillūq (Pr 20:4,8, Ezek 7:25,5) as expected; and fails elsewhere (1S 9:4,12, Pr 13:4,2, Is 59:11,9) as expected. Consequently, there is no issue here at all. That means that there must be some related confusion elsewhere, and that Weil was going to draw our attention to the bigger problem.

The related confusion stems from the major-pausal form מַמַּעְלָה 'אֵין—also correctly—on the poetic D1 'atnah: Pr 25:14,4 (no note). This form without the conjunction is caught up in the net cast by the anomalous major-pausal form מַמַּעְלָה 'אֵין on prose D1 zaqēp, מַמַּעְלָה 'אֵין (hapax with [z] on zaqēp), at Eccl 3:19,22. Mm 3699 adds—incorrectly!—that the non-major-pausal form מַמַּעְלָה 'אֵין occurs only once on D1 zaqēp at Gn 2:5,20. In fact, the latter form occurs a total of 4 times on D1 zaqēp: Gn 2:5,20, Nu 13:20,11, 1S 10:14,15, Is 41:17,5.

It is not clear what exactly Weil intended. Surely he would have drawn attention to the instance in Pr 25:14,4 in the same book as the note he flagged sub loco at Pr 14:6,4. What is not clear is whether he was also going to correct the count in the Mm from one to four; *prima facie* he missed the latter problem.

35 The word מַמַּעְלָה occurs 29 times; of those, two have the additional conjunction מַמַּעְלָה, מַמַּעְלָה, independently guarded by the scribes (Jb 18:16,4 and Ezek 1:26,1). The major-pausal form מַמַּעְלָה occurs 7 times in the Leningrad Codex: once on sillūq (Jb 31:28,8), six times on 'atnah (1K 7:29,12, Jb 3:4,8, 31:2,4, Ps 78:23,3, Pr 8:28,3, Jer 4:28,7). However, one of the 7 instances is in fact an anomalous major-pausal: Jb 3:4,8 in the presence of the auxiliary D1 'olah wayorēd at the half-verse. There is no marginal apparatus. Therefore, this is a mistake that has crept into the Leningrad Codex. The more reliable Aleppo Codex correctly reads the non-major-pausal form מַמַּעְלָה at Jb 3:4,8.

36 Anomalous hās occurs twice on D1 zaqēp: Judges 3:19 and Amos 6:10 (hās also occurs once on D0 sillūq at Amos 8:3,14). Elsewhere hās occurs three times: twice on the conjunctive mērakā’ (Hab 2:20,4, Zech 2:17,1), once on D1 zaqēp gādōl (Zeph 1:7,1).

37 But we should hasten to add that there is no necessary one-to-one correlation between Pause2 and CommaP2, or between Pause1 and CommaP1. The exact correspondence rules can wait until another day.

38 Some conspicuous failures of expected pause fall under this generalization. E.g., the failure of pause on D1 'atnah in Ps 132:11 involves an extra-short phrase.
The prediction is that the three independent pronouns with pausal/contextual variants will conform to this generalization: ‘ānōkî (early 1s), ‘ānî (later 1s), ‘āttâ (2ms).

There are so many complicating factors, it is truly a daunting task. To take one example, the definite article can induce what looks like pause: par versus happâr, har versus hahâr, etc.

The combination of inseparable prefix plus ‘ēreš occurs 34x.

W- plus noun occurs 15x, 13x wâ’āres (Gn 14:19,9, 14:22,14; Ps 69:35,3, 115:15,6, 121:2,6, 134:3,6, 146:6,3; Pr 25:3,3; Is 26:19:13, 65:17,6; Je 33:25,11, 51:48,5, Joel 4:16,9) and 2x wa’ēres (1K 11:18,21, Jb 20:27,4).

There are 10 cases of the phrase šāmayim wâ’āres, and crucially, 2 are not in pause (Je 33:25,11, 51:48,5). Of the three exceptions noted by the marginal apparatus, two instances are within one word of šāmayim—presumably by attraction (Pr 25:3,3, Is 65:17,6); the lone case at is 26:19,13 is truly anomalous.

B- plus noun occurs 17x: Gn 15:13,9, Ex 2:22,11, 18:3,12; Dt 32:10,2; Ne 9:35,8; Jb 28:13,7; Ps 142:6,8; Is 26:10,6, 32:2,13, 38:11,6; Je 2:2,18, 2:6,18, 5:19,25, 15:14,4; Ek 26:20,9, 30:13,18, 31:16,12.

K- plus noun occurs 2x: Ps 78:69,5, 143:6,5.

Standard reference works incorrectly give the lemma for “Susa” as šûšan. In fact, the proper noun should be listed as šûšān.

The proper noun šûšān occurs 21 times.

It occurs 9 times (all in the book of Esther) as the so-called “free” noun šûšan with ā (Es 3:15,15, 4:8,7, 4:16,7, 8:15,16, 9:13,12, 9:14,7, 9:15,5, 9:15,13, 9:18,4); this includes the one appearance on the conjunctive mahpāk (4:8,7).

The other 12 occurrences all occur in the phrase šûšan habbîrâ “the citadel of Susa” as if a “bound” form (Ne 1:1,13, Es 1:2,10, 1:5,9, 2:3,15, 2:5,4, 2:8,10, 3:15,8, 8:14,12, 9:6,1, 9:11,6, 9:12,5, Da 8:2,6).

Nu 14:21,3, 14:28,4; is 49:18,10; Je 22:24,2, 46:18,2; Ek 5:11,3, 14:16,6, 14:18,6, 14:20,7, 16:48,2, 17:16,2, 17:19,7, 18:3,2, 20:3,18, 20:33,2, 33:11,4, 33:27,9, 34:8,2, 35:6,3, 35:11,3; 2p 2:9,3. The lone occurrence on the conjunctive in is 49:18,10 can be understood as a VD3f before the D2. The six occurrences on surface minor disjunctives are underlined in the listing.